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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

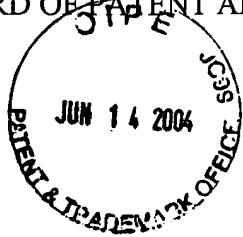
In re Application of:

GERD ALTMAYER ET AL.

Serial No.: 09/446,523

Filed: December 28, 1999

For: FILTER ELEMENT WITH
PLASTIC FILTER CASING



: Art Unit: 1723

: Examiner: J. W. Drodge

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

In response to the June 9, 2004 Office Action, transmitted herewith in triplicate is Applicant's Resubmitted Brief on Appeal in the above-identified application, including Appendix A - Copy of Claims on Appeal. The appeal brief fee and extension fee were submitted on December 23, 2003 with the previously filed Brief.

Claim 25 is properly in the record and on appeal, since it was added in the April 11, 2003 Amendment (on page 3) and since it was treated on the merits in the June 24, 2003 final rejection (page 2, paragraph 2).

- The Commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to Deposit Account No. 18-2220. A duplicate copy of this sheet is attached.
- Any additional excess claim fees under 38 CFR 1.16.
- Any additional patent application processing fees under 37 CFR 1.17.

Respectfully submitted,

Dated: June 11, 2004



Attorney of Record
Mark S. Bicks
Reg. No. 28,770

Roylance, Abrams, Berdo & Goodman, L.L.P.
1300 19th Street, N.W., Suite 600
Washington, D.C. 20036-2680
(202) 659-9076

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In re Application of: :
GERD ALTMAYER ET AL. : Art Unit: **1723**
Serial No.: **09/446,523** : Examiner: **J. W. Drodge**
Filed: **December 28, 1999** : Appeal No. _____
For: **FILTER ELEMENT WITH**
PLASTIC FILTER CASING :

RESUBMITTED BRIEF ON APPEAL

Mark S. Bicks, Esquire
Roylance, Abrams, Berdo & Goodman, L.L.P.
1300 19th Street, N.W., Suite 600
Washington, D.C. 20036-1649
(202) 659-9076

TABLE OF CONTENTS

	<u>Page</u>
1. Real Party in Interest	1
2. Related Appeals and Interferences	2
3. Status of Claims	2
4. Status of Amendments	2
5. Summary of the Invention	2
6. Issue Presented for Review	3
7. Grouping of Claims	4
8. Argument	5
A. Claim 10 is Patentably Distinguishable by Interference Fit Between Mat Filter and Filter Casing Along the Entire Mat Filter Length	5
B. Dependent Claims are Further Distinguished	9
9. Conclusion	11

APPENDIX A - COPY OF CLAIMS ON APPEAL

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PLASTIC FILTER CASING :

**RESUBMITTED APPELLANT'S BRIEF
ON APPEAL UNDER 37 C.F.R. § 1.192**

COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

For the appeal to the Board of Patent Appeals and Interferences from the decision dated June 24, 2003 of the Primary Examiner finally rejecting claims 10-25 in connection with the above-identified application, Applicant-Appellant submits the following brief in accordance with 37 C.F.R. §1.192.

1. Real Party in Interest

The inventors, Gerd Altmeyer, Harald Mees, Herbert Mohr and Ute Lehmann, assigned their entire right, title and interest in the patent application to Hydac Filtertechnik GmbH of Sulzbach, Germany.

2. Related Appeals and Interferences

There are no other related appeals or interferences known to Appellant, Appellant's legal representative, or assignee, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending Appeal.

3. Status of Claims

Claims 10-25 are pending, are rejected, and are on appeal.

4. Status of Amendments

No amendments were filed subsequent to the June 21, 2003 Office Action.

5. Summary of the Invention

The present invention relates to a filter element comprising a fluid-permeable supporting pipe 10, a resilient mat filter 12, a plastic filter casing 16 and two end caps 20 and 22 connected to the filter casing. The mat filter is folded into a cylindrical shape and pushed open on the supporting pipe to surround and engage the supporting pipe. The plastic filter casing has openings 18, encloses the mat filter and delimits a filter chamber. A flat blank is used to form the filter casing with the opposite ends of the blank bent toward one another and joined by a sealing seam. The cylindrical shape of the mat filter has an exterior diameter prior to introduction into the casing larger than an interior diameter of the filter casing to form an interference fit between the filter casing and the mat filter along the entire length of the mat filter. One axial end of the mat filter is formed into a conical shape to facilitate its introduction into the filter casing.

By forming the filter element in this manner, the mat filter is supported directly and tightly on the filter casing by the interference fit, along its entire length, resulting from the relative dimensions of the mat filter and the filter casing. This positive support provides a mat filter which is free of play within the casing such that no gap exists or play is permitted between the outside of the mat filter and the inside surface of the casing. The presence of such a gap or play between the mat filter and the inside surface of the casing, as in the cited prior patents, is disadvantageous. Under working conditions, the fluid passing through the filter element will tend to move the mat filter, particularly the pleats thereof, adversely affecting the filtering capacity of the mat filter. Frictional forces between the filter element pleats will reduce the effective life of the mat filter. The claimed construction also provides a more compact filter element in which one pleat can support adjacent filter pleats.

Filter casing ends 24 and 26 are joined by a heat seal or by a heating element (Fig. 4) to form sealing seam 28, and can be joined by an ultrasonic weld (Fig. 3). The sealing seam can comprise intermittent contact points and an overlapping area of the filter casing ends.

Mat filter 12 is pleated, comprises plastic material and comprises an additional filter fold 32 with a flush arrangement of mat filter edges on one another allowing the mat filter edges to be tightly joined. The filter mat edges 30 can be joined by an ultrasonic weld or a heat seal.

Filter casing 16, end caps 20 and 22 and supporting pipe 10 can be made of recyclable plastic material. The openings 18 in the plastic filter casing are formed by punching out devices and are circular.

Prior to introduction onto supporting pipe 10, mat filter 12 has an interior diameter less than an exterior diameter of the supporting pipe forming an interference fit therebetween along an entire length of the mat filter.

6. Issue Presented for Review

The issues presented for review are as follows:

- (a) Whether claims 10-12, 17-22 and 25 are unpatentable under 35 U.S.C. § 103 over U.S. Patent No. 4,609,465 to Miller (Miller patent) in view of U.S. Patent No. 3,457,339 to Pall (Pall patent).
- (b) Whether claims 13, 23 and 24 are unpatentable under 35 U.S.C. § 103 over the Miller and Pall patents, when further considered in view of U.S. Patent No. 3,460,860 to Domnick (Domnick patent).
- (c) Whether claim 14 is unpatentable under 35 U.S.C. § 103 over the Miller and Pall patents, when further considered in view of U.S. Patent No. 3,200,953 to Komarmy (Komarmy patent).
- (d) Whether claims 15 and 16 are unpatentable under 35 U.S.C. § 103 over the Miller, Pall, Komarmy and Domnick patents.

7. Grouping of Claims

The rejected claims do not stand or fall together. In addition to the patentable features of independent claim 10, each of dependent claims 11-25 is patentably distinguished for the additional reasons presented in the following argument section of this brief.

8. Argument

A. Claim 10 is Patentably Distinguishable by Interference Fit Between Mat Filter and Filter Casing Along the Entire Mat Filter Length

Claim 10, along with claims 11, 12, 17-22 and 25 stand rejected under 35 U.S.C. § 103 as being unpatentable over the Miller patent in view of the Pall patent. The Miller patent is cited for a filter cartridge element having an inner support pipe 16, a mat filter element 14, a filter casing with openings 15, and end caps 12 and 13. The Examiner contends that the Miller mat filter will be inherently formed into a cylindrical shape when inserted between core 16 and casing 15 because of the disclosure in column 3, lines 47-53, column 2, lines 50-56, and the illustration in Figure 2.

The Pall patent is cited in combination with the Miller patent in connection with the formation of the casing from a flat blank having its ends joined by a seam. In support of the rejection, the Examiner contends it would be obvious to provide the Pall casing on the Miller patent filter.

The cited portions of the Miller patent do not specifically disclose or inherently require the interference fit and the formation of the conical shape recited in claim 10. Since the Miller patent does not disclose, suggest or teach that the exterior diameter of its mat filter 14 is larger than the interior diameter of its casing or cage 15, no interference fit is necessarily or inherently provided as alleged in the statement of the rejection.

When no reference discloses a feature of a claim relied on to distinguish the prior art, there can be no suggestion to modify the prior art to contain that feature. In re Civitello, 339 F.2d 243, 144, USPQ 10 (C.C.P.A. 1964). As stated in W. L. Gore & Associates, Inc. v.

Garlock, Inc., 721 F.2d 1540, 1551, 220 USPQ 303, 311 (Fed. Cir. 1983), there must be something in the teachings of the cited patents to suggest to one skilled in the art that the claimed invention would be obvious. Here, there is no teaching in the Miller and Pall patents, or in any other cited patent, of the claimed interference fit extending along the entire length of the mat filter and/or of the claimed conical shape. Thus, the rejection is not adequately supported by a clear factual basis, as required. In re Warner, 379 F.2d 1011, 154 USPQ 173 (C.C.P.A. 1967).

The Miller patent at column 3, lines 47-53 (i.e., the portion referenced by the Examiner) states:

The filter composite 14 may then be pleated and arranged in a cylindrical configuration with the pleats running axially, and the axially aligned ends of the pleated filter composite 14 may then be joined by heating and compressing the end pleats. The pleated filter composite 14 then may be inserted between the perforated cage 15 and core 16, yielding the filter arrangement 11, and the top and bottom ends 26, 20 of the filter arrangement 11 ...

This disclosed heating and compressing of the end pleats of filter composite 14 would not inherently form a conical shape with respect to the remainder of the mat filter as alleged in the final Office Action. Such compressing would only close the axial ends of the Miller mat filter pleats, but would not necessarily change the outer or inner diameter of the pleated mat filter. The compressing in the Miller patent would only bring together two adjacent halves of a single pleat on opposite sides of an inner or outer fold for each pleat, closing the pleat ends to make the ends more rigid for facilitating insertion in the cage. Such closing would not necessarily produce a reduction in the outer or inner diameter, particularly where the degree of compression is unspecified, as here.

Reduction of the mat filter outer diameter is required to have the "mat filter formed into a conical shape to facilitate introduction thereof into said filter casing" as recited in claim 10. Only

a conclusionary statement is presented in the Office Action in this regard. No explanation is provided to support the allegation that a conical shape is provided in the Miller patent. Such explanation is required when no conical shape is expressly described or specifically illustrated to present a *prima facie* case of obviousness. In re Warner, *supra*. Also, no correlation is provided between the heating and compressing of the mat filter pleat ends and the alleged provision of the claimed interference fit.

At the other citation (column 2, lines 50-56), the Miller patent specification states:

The filter arrangement 11 of the illustrated embodiment comprises a cylindrically-shaped filter composite 14 which removes particulates from the destructive fluid and an outer perforated cage 15 and an inner perforated core 16 for supporting the filter composite 14 against forces acting on the composite 14 in a radially outward or radially inward direction, respectively. The outer perforated cage 15 also protects the filter composite 14 from rough handling and restrains the filter composite 14 if it swells.

Contrary to apparent allegations of the Office Action, the support provided by the Miller cage 15 and core 16 on the filter composite 14 does not necessarily or inherently provide the interference fit of claim 10 or that recited in claim 25. Supporting Miller composite 14 from radially inward and outward forces does not preclude some radial movement of the composite in any gaps between the composite and each of the cage 15 and core 16. Even if some contact(s) exists between the Miller composite 14 and cage 15 and/or core 16, such contact would only need to be from the composite exterior diameter being equal to, but not larger than, the interior diameter of cage 15 or from the composite interior diameter being equal to, but not smaller than the outer diameter of core 16. Only by having that larger exterior diameter on the mat filter as recited in claim 10 will the interference fit with the casing and the conical shape be provided. Only by

having the mat filter interior diameter being smaller than the pipe exterior diameter will the interference fit of claim 25 be provided.

The Office Action concedes that "Miller and Pall are silent as to whether the mat filter has a larger diameter than the interior diameter of the filter casing," but attempts to supply that deficiency by stating that one of ordinary skill in the art would have found it obvious that the relatively larger mat filter exterior diameter was inherent. Such inherency is based on the unsupported allegation that the heating and compression of the pleat-ends would result in decreased diameters at the ends of the mat filter, and that such alleged inherent decrease in the mat filter diameter results in the claimed interference fit when compared to other, unspecified Miller patent text portions and unspecified Miller patent figures.

Apparently, the Office Action contends that if the Miller mat filter ends have a reduced diameter relative to the remainder thereof, the remainder of the mat filter is compressed by cage 15 as a result of an interference fit between mat filter 14 and cage 15 to have the illustrated configuration. This contention is untenable since the prerequisite assumption of the reduced diameter mat filter ends is unsupported. Moreover, at best, the alleged interference fit would only necessarily be between the compressed ends and not along the entire length of the mat filter, as claimed.

When inherency is relied upon to support a rejection, as here, evidence must clearly establish that the missing descriptive matter is necessarily present in the cited patent and would be so recognized by persons of ordinary skill. Inherency cannot be established by probabilities or possibilities, or by a certain result that may occur from a given set of circumstances. In re Robertson, 169 F.3d 743, 49 USPQ2d 1949 (Fed. Cir. 1999). In this case, insufficient evidence

is provided to show that the claimed interference fit is necessarily present, rather than a mere possibility.

Accordingly, claim 10 is not rendered obvious by the Miller and Pall patents.

B. Dependent Claims are Further Distinguished

Claims 11-25, being dependent upon claim 10, are also allowable for the same reasons advanced above relative to claim 10. Moreover, these dependent claims recite additional features distinguishing each of them independently over the cited patents.

Claims 11 and 12 are further distinguished by the heat sealing of the casing sealing seam, while claim 16 is further distinguished by the heat seal joining the mat filter edges. The Miller patent does not provide heat seals at these locations, but only discloses heat seals top and bottom ends 26 and 20 to end caps 12 and 13 (column 3, lines 50-55). No heat seal is disclosed by the Miller patent at column 2, lines 38-45.

Claim 13 is further distinguished by an ultrasonic weld, while claims 23 and 24 are further distinguished by the casing sealing seam having intermittent contact points or an overlapping area of filter casing ends, respectively.

Claims 13, 23 and 24 stand rejected as being unpatentable over the Miller and Pall patents, when further considered in view of the Domnick patent. The Domnick patent is cited for the use of an ultrasonic weld for claim 13, the spot welding to meet the limitations of claim 23, and the overlapping of claim 24.. In support of the rejection, the Examiner contends it would be obvious to use the Domnick ultrasonic welding, spot welding and overlapping in the Miller apparatus.

However, column 3, lines 1-3, does not disclose ultrasonic or spot welding as alleged. The spot welding disclosed in column 2, lines 60-61, is for the inner support, not the outer casing. The ends of outer casing 10 are connected by a slide fastener and do not overlap. Thus, the Domnick patent does not teach the features of claims 13, 23 and 24. Also, the mere possibility that these Domnick patent features can be used in the Miller device does not make the modification obvious unless the cited patents suggested the desirability of that modification. In re Gordon, 221 USPQ 1125, 1127 (Fed. Cir. 1984).

Claim 14 is further distinguishable by the pleating and folding of the filter, particularly within the overall claimed combination.

Claim 14 stands rejected under 35 U.S.C. § 103 as being unpatentable over the Miller and Pall patents, when further considered in view of the Komarmy patent. The Komarmy patent is cited for the use of an extra fold in the mat filter, allegedly disclosed in column 2, lines 10-13, and in Figure 2. However, the Komarmy patent merely discloses that the ends of the filter are "secured together in a sealed relationship as indicated at 28." No extra fold is disclosed as alleged in the Office Action.

Claims 15 and 16 are further distinguishable by the weld and heat seal recited therein, respectively.

Claims 15 and 16 stand rejected under 35 U.S.C. § 103 as being unpatentable over the Miller and Pall patents, when further considered in view of the Domnick patent, which is again cited in connection with the use of ultrasonic welding. As noted above, the Domnick patent does not disclose ultrasonic welding.

Claims 17-20 are further distinguishable by the use of recyclable plastic material, particularly within the overall claimed limitation.

Claims 21 and 22 are further distinguishable by the punched out holes recited therein, particularly within the overall claimed combination.

Claim 25 is further distinguished by the second interference fit between the mat filter and the supporting pipe.

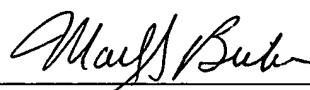
The mere disclosure, at Miller patent, column 3, lines 52-53, of filter composite 14 being "inserted between perforated cage 15 and core 16" does not necessarily or inherently provide an interference fit between the core and the filter composite, for the same reasons advanced above in connection with claim 10.

Accordingly, claims 11-25 are additionally allowable.

9. Conclusion

In view of the foregoing, Applicant-Appellant submits that the rejections under 35 U.S.C. § 103 of claims 10-25 are untenable. Thus, Applicant-Appellant requests that these rejections be reversed.

Respectfully Submitted,



Mark S. Bicks
Reg. No. 28,770

Roylance, Abrams, Berdo & Goodman, L.L.P.
1300 19th Street, N.W., Suite 600
Washington, D.C. 20036-1649
(202) 659-9076

Dated: June 11, 2004

APPENDIX A - COPY OF CLAIMS ON APPEAL

10. A filter element, comprising:

a fluid-permeable supporting pipe;

a resilient mat filter folded into a cylindrical shape and pushed open on said supporting pipe to surround and engage said supporting pipe;

a plastic filter casing with openings enclosing said mat filter and delimiting a filter chamber, said filter casing being formed from a flat blank with opposite ends thereof bent toward one another and joined together by a sealing seam, said cylindrical shape of said mat filter having an exterior diameter prior to introduction into said casing larger than an interior diameter of said filter casing forming an interference fit therebetween along an entire axial length of said mat filter;

two end caps connected to said filter casing; and

one axial end of said mat filter being formed into a conical shape to facilitate introduction thereof in said filter casing;

whereby, said mat filter is supported directly on said filter casing and said supporting pipe.

11. A filter element according to claim 10 wherein

said ends of said filter casing are joined by a heat seal to form said sealing seam.

12. A filter element according to claim 10 wherein

said ends of said filter casing are joined by a heating element to form said sealing seam.

13. A filter element according to claim 10 wherein
said ends of said filter casing are joined by an ultrasonic weld to form said sealing seam.

14. A filter element according to claim 10 wherein
said mat filter is pleated, comprises plastic material, and comprises an additional filter fold
with a flush arrangement of mat filter edges on one another allowing said mat filter edges to be
tightly joined.

15. A filter element according to claim 14 wherein
said mat filter edges are joined by an ultrasonic weld.

16. A filter element according to claim 14 wherein
said mat filter edges are joined by a heat seal.

17. A filter element according to claim 10 wherein
said filter casing consists of recyclable plastic material.

18. A filter element according to claim 17 wherein
said end caps consist of recyclable plastic material.

19. A filter element according to claim 18 wherein
said supporting pipe consists of recyclable plastic material.

20. A filter element according to claim 17 wherein
said supporting pipe consists of recyclable plastic material.

21. A filter element according to claim 10 wherein
said openings in said plastic filter casing are formed by punching out devices.

22. A filter element according to claim 21 wherein
said openings are circular.

23. A filter element according to claim 10 wherein
said sealing seam comprises intermittent contact points of said ends of said filter casing.

24. A filter element according to claim 10 wherein
said sealing seam comprising an overlapping area of said ends of said filter casing.

25. A filter element according to claim 10 wherein
prior to introduction onto said supporting pipe, said mat filter has an interior diameter less
than an exterior diameter of said supporting pipe forming an interference fit therebetween along an
entire axial length of said mat filter.